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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,254	11/29/2000	Chakib Bennis	612.39352X00	8250

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EXAMINER	
PALADINI, ALBERT WILLIAM	
ART UNIT	**PAPER NUMBER**
2125	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/725,254	BENNIS ET AL.	
	Examiner	Art Unit	
	Albert W Paladini	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/29/00*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

The claims are written in narrative form stating an objective of forming a model or simulating a process, and then enumerating, in no specific order, elements of the methodology utilized. A method claim must consist of a series of logical, sequential steps, which culminate in achievement of the recited objective. Although these claims provide a general narrative description of the methodology, they do not provide the sequential logical flow of interrelated steps required in a method claim.

Although the specification provides a dictionary for the claims, and the claims may be broader than the specification; each claim must be complete and self consistent in itself. For a structural claim, the recitation must describe clearly how all the elements are physically connected together. For a functional claim, the recitation must describe clearly how the elements are physically connected together, and in addition, the sequential logical operation of the element working cooperatively together must be understood. For a method claim, the recitation must describe a sequential operation where each step further limits the previous step. In addition, even though the method

claim is procedural, each step must be supported with sufficient physical means for accomplishing the step.

Appropriate correction and clarification are required.

Allowable Subject Matter

3. Claims 1 and 3 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

4. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: None of the references cited or the art searched disclose or teach alone or in combination the method of generating a hybrid grid for generating a fluid flow model for a heterogeneous formation or medium using a radial type grid for discontinuities for the zones around the wells in conjunction with the other specific method limitations recited in claims 1 and 3.

Relevant Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Guerillot discloses a method utilizing a model for predicting the production of an underground reservoir. To construct the initial model, all the available information is

incorporated therein: raw or interpreted data, geological surveys, seismic measurements, etc. The physical knowledge of a reservoir is an integral part of the model. An initial geologic representation is selected, that constitutes the information available a priori on the reservoir. The geologic model is here a vertical section comprising two 7.5 m-high and 100 m-thick layers (FIG. 1) C1, C2 with constant horizontal permeability's K1, K2 of 200 mD and 100 mD respectively. The simulation grid is made up of ten cells for each layer in the horizontal direction, and the overall length is 500 m.

Vienot (5835882) discloses a method for determining barriers to reservoir flow where the first step in determining an NUI model for petrophysical properties, is obtaining a 3-D seismic survey surrounding a well, along with lithological and petrophysical information from at least one well, for example, from well logs and coring operations. The method defines an initial lithological model at a reference well location, which includes velocity, and density logs derived by using petrophysical equations to integrate measured porosity, composition, and saturation logs into the velocity and density logs. The real seismic trace corresponding to the well location is associated with the initial model such that lithologic data is paired with the seismic data at the well site. Forward model perturbation techniques are then used to pair seismic and lithological data at the model sites.

Sarda (6064944) discloses a method of modeling a geological porous medium including a network of fractures by integrating natural fracturing data into fractured reservoir models are also known in the art. Fracturing data are mainly of a geometric nature and include measurements of the density, length, azimuth and tilt of fracture planes observed either on outcrops, cores or mine drifts, or inferred from well logging. Different fracture sets can be differentiated and characterized by different statistical distributions of their fracture attributes. Once the fracturing patterns have been characterized, numerical networks of those fracture sets can be generated using a stochastic process respecting the statistical distributions of fracture parameters.

Whiffen (6151566) discloses a piecewise continuous model utilized to optimize control of a remediation groundwater process which involves field measurements to determine groundwater site properties. Further, the invention can be used with minor modifications well known in art, such as super-time-stepping, Quasi Newton approximations, Hessian shifting, adaptive integration, implicit-time integration, iterative equation solvers, bang-bang optimization, non-convex objective functions, sparse operations, and multi-grid methods.

7. Any inquiry concerning this communication or earlier communication from the examiner should be direct to Albert W. Paladini whose telephone number is (703) 308-2005. The examiner can normally be reached from 7:30 to 3:30 PM on Monday, Tuesday, Thursday, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Leo P. Picard, can be reached on (703) 308-0538. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Albert W. Paladini
Primary Examiner
Art Unit 2125

July 8, 2004